IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of)	
)	
Bengt Y. PERSSON et al.)	Group Art Unit: 2745
)	
Application No.: 08/384,456)	Examiner: Nguyen Vo
)	
Filed: February 2, 1995)	Appeal No. _____
)	
For: MOBILE ASSISTED HANDOVER)	
USING CDMA)	

BRIEF FOR APPELLANT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

This appeal is from the decision of the Primary Examiner dated January 21, 1998, finally rejecting claims 1-22 and 49-52, which are reproduced as an Appendix to this brief.

A check covering the [ ] $150.00 [X] $300.00 requisite Government fee and two extra copies of this brief are being filed herewith.

The Commissioner is authorized to charge any fees that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800.

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I.   Real Party in Interest

The inventors have assigned his rights to the invention that is disclosed in the application and any patent that may issue therefrom to Ericsson GE Mobile Communications, Inc. and Telefonaktiebolaget LM Ericsson. ·

II.   Related Appeals and Interferences

No known appeals or interferences are believed to directly affect or to be directly affected by or have any bearing on the Board's decision on Appeal.

III.   Status of Claims

Claims 1-52 are currently pending in the application. All of the pending claims are the subject of the present Appeal except for claims 23-48 as described in the next section.

IV.   Status of Amendments

Appellants have submitted herewith an Amendment After Final Rejection wherein claims 23-48 are cancelled to reduce the number of issues on Appeal. Appellants reserve the right to prosecute these claims at a later date, e.g., in a continuation application.

V.   Summary of the Invention

The present invention relates to signal processing in radiocommunication systems wherein signals are transmitted to a mobile station from one or more base stations to support, for example, a wireless telephone call. In particular, the signal processing focused on by the present invention implicates a particular access methodology, code division multiple access (CDMA) and a particular radio connection handling technique, known in the art as soft handoff. To provide some context for the present invention, a brief description of these two technologies is presented below.

CDMA techniques are referred to as spread spectrum since they "spread" a signal across a usable frequency bandwidth. This spreading involves multiplication of the information signal bits with a code, frequently referred to as a spreading code. Each connection between the fixed portion of a radiocommunication system and a mobile unit is assigned a different spreading code. Thus, CDMA transmissions can be seen as being overlapping in time and frequency.

Spreading codes are typically orthogonal to one another so that different connections can be readily distinguished by a receiver. A composite signal, i.e., including various signals overlapping in time and frequency, is received by a mobile station and processed to extract its desired signal and, at a simplest level, ignore the remainder of the composite signal. Receivers perform this extraction by correlating the received signal with their connection's assigned spreading code to retrieve the information bits associated with their connection. Thus distinguishing between radio channels or resources in a radiocommunication system employing CDMA involves distinguishing between codes, whereas different TDMA channels refer to different frequencies and/or timeslots.

Handoff is implemented, for example, when a mobile station moves sufficiently far from its currently serving base station that the quality of its connection falls below a threshold value. At that time, the system (with or without the aid of the mobile station) selects a new base station to continue supporting the connection and transfers responsibility for that connection to the new base station. A *soft* handoff typically refers to a technique wherein the new base station begins transmitting to the mobile station before the original base station terminates its support of the connection. This is also commonly referred to as a "make before break" type of handoff. In TDMA systems, soft handoff is typically implemented by having the new base station transmit the message information to the mobile station on the same frequency as the original base station to ensure continuity of data reception. This is done because frequency is one parameter by which the radio channel is defined and because many mobile stations cannot physically receive information simultaneously on two different frequencies.

The present invention tackles issues surrounding how to handle soft handoff in a CDMA radiocommunication system employing codes to transmit information to a mobile station having a single, albeit wide, frequency channel. In one exemplary embodiment, the present invention teaches that soft handoff can be accomplished using different codes, i.e., spreading the information transmitted to a mobile station from a first base station using one code while spreading the information transmitted to the same mobile station from a second base station using a different code. Of course, the mobile station can only extract the information from the composite signal if it is informed of the codes being used, so certain exemplary embodiments provide for informing the mobile station of the new code to be employed when the second base station begins to transmit to it.

Another issue implicated by soft handoff involves how to handle simultaneous reception of information from the two base stations. This condition is frequently referred to as diversity reception. Before the actual handoff occurs, the mobile station can take advantage of having two sources of information to improve its received signal quality. This can be done in a plurality of different ways. According to exemplary embodiments, diversity combining occurs by selecting, on a symbol-by-symbol basis, information from one base station or the other to arrive at an improved signal. To achieve this, systems and methods according to the present invention have to perform at least some of the decoding/demodulating prior to combining the signals.

VI.   <u>The Issues</u>

There are five groups of issues presented for Appeal. They are as follows:

A. Whether claims 49-52 are properly rejected under 35 U.S.C. § 112, first paragraph, as allegedly containing subject matter which was not adequately described in the specification.

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B. Whether claims 14, 15 and 51-52 are properly rejected under 35 U.S.C. § 102 as allegedly being anticipated by Blakeney, II et al. (U.S. Patent No.5,267,261), hereinafter "Blakeney".

C. Whether claims 2, 7, 8, 9, 16, and 17 are properly rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Blakeney in view of U.S. Patent No. 5,159,608 to Falconer et al. ("Falconer").

D. Whether claims 1, 3-6, 10-13, 49 and 50 were properly rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Blakeney.

E. Whether claims 18-22 were properly rejected under 35 U.S.C. § 103 as allegedly being obvious over Blakeney in view of U.S. Patent No. 5,151,919 to Dent, or U.S. Patent No. 5,218,619 to Dent or U.S. Patent No. 5,430,760 to Dent, or U.S. Patent No. 5,239,557 to Dent, or U.S. Patent No. 5,353,352, to Dent et al., or U.S. Patent No. 5,295,152 to Gudmundson et al., or U.S. Patent No. 5,295,153 to Gudmundson, or U.S. Patent No. 5,237,586 to Bottomley et al.

VII. Grouping of Claims

For purposes of this appeal, claims 1, 3 and 4 stand or fall together. Claim 5 stands independently from claim 1 and is argued separately herein. Claim 6 stands independently from claim 1 and is argued separately herein.

Claims 2 and 16 stand or fall together but are argued separately from the remaining claim groups.

Claims 7-9 and 17 stand or fall together, but are argued separately from the remaining claim groups.

Claims 10-13 each stand or fall independently and are each argued separately herein.

Claims 14 and 15 stand or fall together, but are argued separately from the remaining claim groups.

Claims 18 and 19 stand or fall together, but are argued separately from the remaining claim groups.

Claims 20-22 each stand or fall independently and are argued separately herein.

VIII. Argument

Upon proper application of the law and an understanding of the technical principles involved in the present invention, Appellants submit that it will be readily apparent that reversal of the rejections is proper.

A.   Claims 49-52 are Adequately Described by the Originally Filed Specification As Required by 35 U.S.C. § 112.

With respect to claims 49 and 51, the Examiner has apparently objected to the phrases "post detection selection combining" that is performed on a "symbol-to-symbol basis". Reference is made to Figure 2 of the present application, as well as the corresponding text found on pages 11 and 12. Demodulation is performed first, as indicated by the arrow on the leftmost side of the Figure, which results in demodulated symbols as is well known in the art. After demodulation, the demodulated symbols are fed to a demultiplexor/selector 20. The demultiplexor/selector 20 is controlled to select demodulated data from either the old base station or both the old base station and the new base station. This data can be selected or combined by decoders 21 and 22 on a symbol basis, see, e.g., originally filed claim 5. Accordingly, Appellants find ample written descriptive support for these claims.

With respect to claims 50 and 52, the Examiner is apparently objecting to the phrase "within or subsequent to the determination by the error correction decoding process". This phrase is respectfully submitted to be fully supported by the afore-described disclosure, as well as originally filed claim 6.

B.   **Blakeney Teaches Producing a Single Demodulated Signal Associated with the Transmissions from Two Base Stations and Pre-Detection Combining**

Claims 14, 15 and 51-52 were rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 5,267,261 to Blakeney, II et al. ("Blakeney").

Appellants' claim 14 combination includes, among other things, "CDMA processing means for processing and decoding said numerical values **using a first and second code** to obtain a demodulated data received from each of said first and second base stations to generate **first and second demodulated data signals**, respectively."

In response to Appellants' arguments in their most recent filing, at page 14 of the Official Action it is stated that, "Although Blakeney discloses diversity combining two signals received from two base stations, these two signals, **before they are combined**, do read on the claimed first and second demodulated signals. It should be noted that the demodulated signals as claimed are nothing but decoded signals . . . Since the receivers 40 and 42 in Blakeney are decoded receivers (See column 14, lines 27-34), the two output signals of the receivers 40, 42 are decoded signals and thus read on the demodulated signals as claimed (emphasis original)." From this passage, it appears that the Examiner is taking the position that the claimed first and second demodulated signals can be read on <u>any</u> two signals which have been received by the system of Blakeney and processed in some manner.

Appellants believe this to be an unfair characterization both of Appellants' claim 14 combination and of Blakeney. In describing the receiver operation at the mobile station, Blakeney, at col. 13, lines 8-21 states that the function of receivers 40 and 42 is to correlate the IF samples with the proper PN sequence. Specifically, at lines 18-21, Blakeney states that the result of this detection process is a sequence of **encoded data symbols** (Emphasis added)." Blakeney, at lines 54-65, goes on to state that the outputs of receivers 40 and 42 are provided to diversity combiner and decoder circuitry 48. The diversity combiner circuitry and decoder circuitry contained within the circuitry 48 adjusts

the timing of the two streams of received signals into alignment and adds them together. The diversity combiner is described, as is known to one skilled in the art, as a maximal ratio diversity combiner. "The resulting **combined** signal stream **is then decoded** using a forward stream error detection decoder." Thus, according to Blakeney, the output of receivers 40 and 42 provides "encoded" data symbols to the diversity combiner which combines the signals and then decodes the combined signal. This is also known in the art as "pre-detect combining." Therefore, Blakeney does not describe Applicants "post-detect combining" wherein the first and second signals are **decoded** to produce **first** and **second** demodulated **signals** .

With respect to Appellants' claim 15 combination, the Office Action points to column 19, lines 24-42, as allegedly describing that Appellants' claimed first and second codes include a base station code and a traffic channel code. While the cited portion of Blakeney does refer to "base station identifications," it does not do so in the context of codes which are "used to process and decode numerical values to obtain demodulated signal" as are Appellants' first and second codes in claim 15. That is, the cited portion of Blakeney does not indicate that the base station identifications are used in the same manner as Applicants' claimed first and second codes and, therefore, cannot be said to correspond thereto.

With respect to claims 51 and 52, the Office Action points to columns 13 and 14 of Blakeney as allegedly containing teachings of the claimed elements. However, Appellants claim 51 combination further recites that the claimed system includes:

> CDMA post detection selection combining means for selecting on a symbol-by-symbol basis from either the first demodulated signal or the second demodulated signal the symbols that are to be error corrected.

As mentioned above with respect to claim 14, Blakeney teaches maximum ratio combining i.e., wherein the signal streams are combined using information **from both** streams to create each symbol to demodulation. See column 13, lines 55-61 of Blakeney, "The diversity combiner...adds them together...by multiplying the two streams by a number

corresponding to the relative signal strengths of the two streams." By way of contrast, claim 51 specifies that the combination occurs by selection on a symbol-by-symbol basis.

Appellants claim 52 combination recites, among other things that the combination includes:

> error correcting means for combination of said first and second demodulated signals **within or subsequent** to the determination by [sic] an error correction decoding process of the data most likely transmitted (Emphasis added).

Blakeney, however, operates in the opposite manner, i.e., "The resulting combined signal stream is **then** decoded using a forward stream error detection decoder also contained within the circuitry (Emphasis added)." See Col. 13, lines 62-65.

As Blakeney fails to describe each and every element of Appellants' claims, it cannot serve as a basis of rejection under § 102(e) and therefore it is respectfully requested that the rejection of claims 14, 15, 51 and 52 be REVERSED.

C. One of Ordinary Skill in the Art Would Not Have Arrived at Appellants Claimed Combinations Based on the Teachings of Blakeney and Falconer et al.

Claims 2, 7, 8, 9, 16, and 17 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Blakeney in view of U.S. Patent No. 5,159,608 to Falconer et al. ("Falconer"). Claims 2 and 7 will be addressed in turn.

Appellants claim 2 combination relates to communicating with a mobile station from two base stations including, among other features:

> transmitting a control signal on a first frequency from said first base station to said mobile station using a waveform encoded with a first scrambling code to inform said mobile station of a second frequency and a second scrambling code, different from said first scrambling code, which relate to said second base station;

> after receiving said transfer indication, transmitting a signal on the second frequency from said second base station to said mobile station using a waveform encoded with the second scrambling code; and

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after receipt by said mobile of said control signal, receiving said signal on said second frequency and decoding said signal with said second scrambling code to produce a demodulated signal.

Thus this claim relates to, among other things, communicating with a second base station using a different frequency and a different scrambling code than those used to communicate with the first base station. As correctly recognized by the Examiner, Blakeney does not teach or suggest (1) using different scrambling codes for transmitting signals to the mobile station from different base stations and (2) using different frequencies for transmitting signals to the mobile station from different base stations.

The first of these differences is alleged to have been obvious in view of the Falconer et al. patent. Specifically, the Examiner suggests that "it would have been obvious to one of ordinary skill in the art to provide the teaching of 'unique scrambling code' in Falconer to Blakeney in order to completely eliminate cross talk and to make it very difficult and costly to eavesdrop or track calls (as suggested by Falconer)". However, there is no suggestion in Blakeney that such problems exist in that systems. In fact, in most cellular systems it is desirable to be able to track calls, i.e., locate mobile units, in order to be able to more rapidly respond to, e.g., emergency calls. Accordingly, as a first point, Appellants respectfully submit that modifying Blakeney to add the different scrambling codes of Falconer is based on impermissible hindsight.

The second of these differences is alleged to have been obvious, not based on a reference, but based on the unsupported reasoning that:

> it would be appreciated by those skilled in the art that if a minimum frequency bandwidth or a non-interrupted handoff is preferred in Blakeney's invention, then the first and second base stations should use the same carrier frequency. Otherwise, if a minimum frequency interference is preferred or one of the two base stations can not provide signals for the mobile station on the frequency employed by another base station, then the different carrier frequencies should be incorporated. (OA at p. 9)

Appellant respectfully submits that, not only is this unsupported link in the obviousness chain unsupported by any documents, **it flies in the face of Blakeney's express teaching to use the same frequency band when transmitting signals to a mobile station.** It will be

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readily apparent to the reader of the Blakeney patent that the "make before break" notion of so-called soft handoffs is a critical feature of that disclosure. Inherent to the soft handoff technique described by Blakeney is the fact that the mobile station communicates with the various base stations using the same frequency band **to avoid having to switch frequencies and the potential for disruption associated therewith**. See, e.g., Column 5, lines 10-21 of Blakeney. Given this direct teaching away from the unsupported modification suggested in the Office Action, it is respectfully submitted that one of ordinary skill in the art would not have modified the system of Blakeney to operate using different frequencies as claimed.

A third difference between any combination of Blakeney and Falconer is found in the first step of claim 2:

> transmitting a control signal on a first frequency from said first base station to said mobile station using a waveform encoded with a first scrambling code to inform said mobile station of a second frequency and a second scrambling code, different from said first scrambling code, which relate to said second base station;

This difference is not addressed in the Office Action but is wholly missing from Blakeney and Falconer whether taken separately or together. Naturally, since Blakeney uses the same PN code and same frequency band to communicate with a mobile station from different base stations during soft handoff, there is no need for Blakeney to communicate such information thereto.

For at least the foregoing reasons, it is respectfully submitted that claims 2 and 16 are patentably distinguishable from any combination of Blakeney and Falconer.

Appellants' claim 7 combination also includes different scrambling codes and, therefore, is respectfully submitted to be patentably distinguishable from for at least some of the reasons set forth above with respect to claim 2. Moreover, claim 7 is also patentable for other reasons described below.

Appellants' claim 7 combination describes, among other things, a method for transferring communication from one base station to another in a radiocommunication system based upon quantified signal strengths. The signal strengths are quantified by the mobile station, transmitted by the mobile station to a base station and forwarded to a

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network controller. The network controller then selects one of the base stations to maintain communication with the mobile station.

Blakeney, in addition to not using different scrambling codes, does not operate as claimed to perform a handoff. For example, whereas Appellants' claimed combination reports the signal strengths from the mobile station to the system for processing, in Blakeney **the mobile station** evaluates the signal strengths relative to a threshold and only sends a signal when a signal strength falls below a predetermined threshold for a predetermined time. See, column 4, lines 4-8. When this occurs, the mobile station transmits a message to the system indicating the occurrence of this event.

This difference is significant since it permits systems developed in accordance with Appellant's claimed combination to perform more global network optimization, i.e., by permitting the system to make handoff decisions based upon criteria in addition to signal strength such as base station loading. By way of contrast, the system of Blakeney requires the mobile stations to be the handoff decision makers, which may not always result in optimal system performance. Claims 8, 9 and 17 are also patentable for at least the reasons set forth above with respect to claim 7.

For at least the foregoing reasons, it is respectfully submitted that claims 2, 7-9, 16 and 17 are patentable over Blakeney and Falconer whether taken singly or in combination.

D.   Blakeney Does Not Use Different Codes To Process Signals

Claims 1, 3-6, 10-13, 49 and 50 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Blakeney. Appellants' claim 1 combination relates to a method for communicating information wherein information is transmitted to a mobile station from both a first base station and a second base station. The first base station uses a first code to encode its transmissions, while the second base station uses a second code to encode its transmissions. Upon reception, the mobile station uses the first and second codes to produce first and second demodulated signals.

A first reason why claim 1 is patentable over Blakeney is that Blakeney does not employ first and second codes as claimed to process signals. As mentioned above, Blakeney teaches a method for performing a soft handoff in a code division multiple access system. In the Office Action, it is alleged that claim 1 reads on Blakeney, which uses the same PN code to encode signals transmitted by both base stations, by virtue of Blakeney's indication that different phase offsets of this code are used by the two base stations to encode the signal. However using different phase offsets of a single code is not the same as using different codes. Thus, it is respectfully submitted that does not teach Appellants' claimed transmitting steps found in claim 1.

The usage of multiple codes in this claimed combination, and the distinction between usage of such multiple codes and the usage of a single PN code with different offsets in Blakeney, is even more clearly seen when considering the receiving side of the communication system. According to Appellants' claim 1 combination, the first and second codes are used to decode the received signals into first and second demodulated signals. By way of contrast, Blakeney **correlates the received signal with only one PN code** to extract the mobile station's intended signal. See Blakeney at Col. 13, lines 11-12 ("The function of the receivers 40 and 42 is to correlate the IF samples with **the** proper PN sequence"). In fact, Blakeney makes it clear that this operation is the same regardless of whether the receiver of Blakeney is operating to receive signals from one base station or two different base stations. See Blakeney at Col. 13, lines 51-53. This is only possible because Blakeney teaches using the same PN code (albeit one is a phase-shifted version of the other) to encode signals destined for a mobile station when performing soft handoff. Otherwise, Blakeney would need to correlate to different PN sequences, something which is not taught or suggested by this document.

A second reason why claim 1 is patentable relative to the teachings of Blakeney is that first and second demodulated signals are not generated by the receiver. As described in more detail above, Blakeney teaches pre-detection combining wherein the outputs of the

first and second receivers 40 and 42 are combined prior to being error detection decoded, thus generating a single demodulated signal.

Appellants' claim 5 combination further recites that symbols are selected from the first and second demodulated signals. As mentioned above, Blakeney does not teach or suggest selecting symbols but instead teaches maximal ratio combining signals. Thus, Appellants' claim 5 combination is also patentable for this reason. On page 11 of the Office Action, the Examiner points to Blakeney's generic teaching of diversity combining as allegedly being sufficient to render this feature of Appellant's claimed combination unpatentable.   However, as recognized by Blakeney "although different types of diversity combining are known in the art..[i]n the present invention a form of maximimu ratio combining is used."

Appellants' claim 6 combination includes, among other features, that symbols are combined from first and second demodulated signals. As described in the previous paragraph, Blakeney neither teaches nor suggests combining symbols from demodulated signals, but instead first combines signals before error correction decoding.

The Office Action lumps independent claims 1 and 10 together in the rejection, however claim 10 includes several features that are not found in claim 1 and are not addressed in the Office Action. Specifically, claim 10 includes the usage of **three** different codes in processing the signals associated with transmissions from two base stations to generate a first demodulated traffic signal, a decoded control message and a second demodulated traffic signal. Nothing remotely analogous to these claimed features can be found in Blakeney, nor is there any attempt in the Office Action to somehow allege that these deficiencies would have been obvious. Accordingly, it is respectfully submitted that a *prima facie* case of obviousness has not been made with respect to claim 10.

An example of how these three codes can be configured is provided in dependent claims 11-13, each of which is also patentable by virtue of its dependency from claim 10 for the reasons set forth above and for other reasons. For example, claim 11 indicates that the second code is a combination of the first base station code and a control channel code,

which feature is not taught or suggested by Blakeney. Claim 12 indicates that the third code is a combination of a second base station code and a second traffic channel code, which is also not taught or suggested by Blakeney which teaches no third code being used as claimed. Claim 13 indicates that the third code can, alternatively, include a combination of a second base station code and a control channel code, which feature is also not taught or suggested by Blakeney.

Claim 49 recites, among other things, post detection selection combining by selecting on a symbol-by-symbol basis from either the first demodulated signal or the second demodulated signal the symbols that are to be error corrected. As mentioned above, with respect to claim 51, Blakeney clearly fails to teach or suggest this feature as well.

Claim 50 recites, among other things, combination of said first and second demodulated signals within or subsequent to the determination by the error correction decoding process of the data most likely transmitted. As mentioned above, with respect to claim 52, Blakeney also clearly fails to teach or suggest this step.

For at least the foregoing reasons, it is respectfully submitted that claims 1, 3-6, 10-13, and 49-50 are patentable over Blakeney.

E. The Applied Documents Do Not Suggest Appellants' Claimed Combination of Multi-Code Handoff and Subtractive Demodulation

Claims 18-22 were rejected under 35 U.S.C. § 103 as allegedly being obvious over Blakeney in view of U.S. Patent No. 5,151,919 to Dent, or U.S. Patent No. 5,218,619 to Dent or U.S. Patent No. 5,430,760 to Dent, or U.S. Patent No. 5,239,557 to Dent, or U.S. Patent No. 5,353,352, to Dent et al., or U.S. Patent No. 5,295,152 to Gudmundson et al., or U.S. Patent No. 5,295,153 to Gudmundson, or U.S. Patent No. 5,237,586 to Bottomley et al. Appellant's claim 18 combination recites a method for performing a handoff using two different codes to transmit signals from a first base station and a second base station to a mobile station and demodulating those signals in signal strength order. The mobile station receives a signal from the first base station informing it of the second code which

will be used by the second base station to encode transmissions when the second base station commences transmission **so that the mobile can decode these transmissions**. The soft handoff techniques described in Blakeney differ from those set forth in Appellants' claim 18 combination in several respects.

First, as discussed above with respect to claim 1, Blakeney does not use different codes to encode transmissions from the two base stations. Instead, Blakeney uses the same PN sequence having different phase offsets. The Examiner takes the position in the Office Action that the claimed first and second different codes can be read on different phase offsets of a single PN sequence. However, as explained above, this position is respectfully submitted to be both literally improper and improper based upon the resulting functionality.

Secondly, and as also explained above with respect to claim 2, since two different codes are used in Appellants' claim 18 combination, this claim includes the step of:

> transmitting a first signal...to inform the mobile station of a second code, different from said first code, which relates to said second base station

Blakeney, on the other hand, simply does not perform this step and does not need to perform this step **since the same PN sequence is used to encode transmissions from the two base stations to a particular mobile station.**

Third, claim 18 also includes the step of demodulating the first and second signals in order of strongest to weakest signals. As recognized by the Examiner, this step is not taught or suggested by Blakeney. Thus, the Examiner cites a number of Ericsson patents which describe Paul Dent's patented subtractive CDMA techniques and argues that the combination would have been obvious based upon the general notion that such would be more efficient. However, only Appellants' specification suggests using subtractive demodulation **during soft handoff**. Only hindsight usage of the specification would have motivated one of ordinary skill in the art to combine the cited documents in the manner suggested in the Office Action.

Appellants' claim 20-22 combinations relate to different, novel aspects of power control during soft handoff. The Examiner recognizes that Blakeney does not teach or

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suggest these power control techniques. Specifically, claim 20 further recites that the second base station gradually increases a power level of the third signal to a desired power level. This feature, as well as those described in claims 21 and 22, have been rejected based upon the general notion that power control *per se* was known in the art and that, therefore, it would have obvious to include power control in the soft handoff technique of Blakeney. Initially, Appellants note that the Examiner has resorted to **Appellants own specification** to dredge up an alleged motivation to modify Blakeney— a clearer indication of impermissible hindsight is difficult to imagine.

Moreover, even assuming, strictly *arguendo*, that power control *per se* was known and desirable, such a generalized teaching would not have been sufficient to motivate one of ordinary skill in the art to have controlled the power levels of the specific signals claimed by Appellant in the particular manner claimed. For example, such a generalized teaching would not have motivated one of ordinary skill in the art to have <u>gradually increased</u> a power level of the <u>third</u> signal (claim 20) or to have <u>gradually decreased</u> a power level of the <u>first</u> signal <u>after the mobile station receives the third signal</u> (claim 21) or to have gradually increased a power level of signals transmitted to the second base station and gradually decreased a power level of signals transmitted to the first base station during simultaneous transmissions (claim 22).
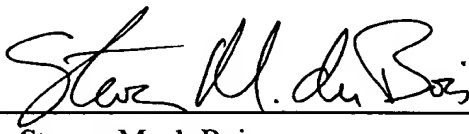
IX. Conclusion

Accordingly, since the rejections of the claims are not proper, REVERSAL of the rejections are respectfully requested.
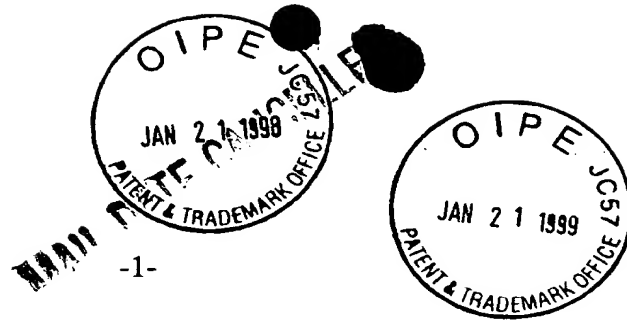
Respectfully submitted,

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APPENDIX

1. In a cellular mobile radio communications system including at least one mobile station and at least two base stations, a method of communicating with said mobile station from a first and a second of said base stations comprising the steps of:

transmitting a signal on a first frequency from said first base station to said mobile station using a waveform encoded with a first code;

sending a transfer indication from said first base station to said second base station which commands the second base station to begin communicating with said mobile station;

after receiving said transfer indication, transmitting a signal on said first frequency from said second base station to said mobile station using a waveform encoded with a second code which is different from said first code; and

receiving at said mobile station said signals transmitted on said first frequency from said first and second base stations and decoding said signals using said first and second codes to produce a first and a second demodulated signal.

2. In a cellular mobile radio communications system including at least one mobile station and at least two base stations, a method of communicating with said mobile station from a first and a second of said base stations comprising the steps of:

transmitting a control signal on a first frequency from said first base station to said mobile station using a waveform encoded with a first scrambling code to inform said mobile station of a second frequency and a second scrambling code, different from said first scrambling code, which relate to said second base station;

sending a transfer indication which commands the second base station to begin communicating with said mobile station from said first base station to said second base station;

after receiving said transfer indication, transmitting a signal on the second frequency from said second base station to said mobile station using a waveform encoded with the second scrambling code; and

after receipt by said mobile of said control signal, receiving said signal on said second frequency and decoding said signal with said second scrambling code to produce a demodulated signal.

3.   A method according to claim 1, wherein said first code includes a first base station code for identifying said first base station combined with a first access code and said second code includes a second base station code for identifying said second base station combined with a second access code.

4.   The method according to claim 1, further including the step of: error correcting said demodulate signals.

5.   The method according to claim 4, wherein said error correcting step comprises selecting symbols from said first and second demodulated signals.

6.   The method according to claim 4, wherein said error correcting step comprises combining symbols from said first and second demodulated signals.

7.   In a cellular mobile radio communications system including at least one mobile station and at least two base stations, a method of transferring communication with said mobile station from a first to a second of said base stations comprising the steps of:

decoding, at said mobile station, signals received simultaneously from said at least two base stations on a common frequency, each signal encoded with a different scrambling code and modulated with the same data related to said communication, and quantifying their respective signal strengths;

transmitting a signal from said mobile station indicating said respective signal strengths;

receiving at one of said at least two base stations said signal indicative of signal strengths and sending said signal indicative of signal strengths to a network controller; and

processing said indicated signal strengths in said network controller and selecting one of said at least two base stations to maintain communication with said mobile station.

8.   A method according to claim 7, wherein said network controller commands said selected base station to initiate a transmission to said mobile station using an available access code.

9.   A method according to claim 7, wherein said access code is composed of a base station code for identifying said base station combined with a traffic channel code.

10.   In a cellular mobile radio communications system including at least one mobile station and at least two base stations, a method of communicating with said mobile station from a first and a second of said base stations comprising the steps of:

transmitting a first traffic signal on a first frequency from said first base station to said mobile station using a waveform encoded with a first code;

transmitting a control message which includes information relating to a third code on said first frequency from said first base station to said mobile station using a waveform encoded with a second code which is different from said first code;

sending a transfer indication which commands said second base station to begin communicating with said mobile station from said first base station to said second base station;

after receiving said indication, transmitting a second traffic signal on said first frequency from said second base station to said mobile station using a waveform encoded with said third code; and

receiving at said mobile station said signals transmitted on said first frequency from said first and second base stations and decoding these signals using said first, second and third codes to obtain a first demodulated traffic signal, a decoded control message and a second demodulated traffic signal, respectively.

11. A method according to claim 10, wherein said first code includes a combination of a first base station code for identifying said first base station with a first traffic channel access code and said second code includes combination of said first base station code with a control channel code.

12. A method according to claim 11 in which said third code includes a combination of a second base station code for identifying said second base station with a second traffic channel code.

13. A method according to claim 11 in which said third code includes combination of a second base station code for identifying said second base station and a control channel code.

14.   A cellular mobile radio telephone system comprising:

first and second base stations; and

a remote unit including:

signal processing means for producing an analog signal representative of signals received from said first and second base station on the same frequency;

analog to digital conversion means for converting said analog signal to a sequence of numerical values;

CDMA processing means for processing and decoding said numerical values using a first and second code to obtain a demodulated data received from each of said first and second base stations to generate first and second demodulated data signals, respectively, said first and second demodulated data signals including information relating to signal quality of said received signals;

encoding means for encoding said information into a data message; and

CDMA transmitting means for transmitting said data message to at least one of said first and second base stations.

15.   A mobile station according to claim 14, wherein said first code includes combination of a first base station code for identifying said first base station with a first access code and said second code includes combination of a second base station code for identifying said second base station with a second access code.

16.   The method of claim 2, wherein the first and second scrambling codes have different numeric values.

17.   The method of claim 7, wherein the scrambling codes have different numeric values.

18.   In a radio communication system including at least one mobile station and at least two base stations, a method of communication with the mobile station from a first and a second of said base stations comprising the steps of:

transmitting a first signal from said first base station to said mobile station using a waveform encoded with a first code to inform said mobile station of a second code, different from said first code, which relates to said second base station;

receiving at the mobile station a composite signal including said first signal from said first base station and a second signal from said second base station;

demodulating, in an order of strongest to weakest signal strength, the first and second signals from the first and second base stations;

sending a transfer indication from said first base station to said second base station which transfer indication commands the second base station to begin communicating with said mobile station;

after receiving said transfer indication, transmitting a third signal from said second base station to said mobile station using a waveform encoded with the second code; and

after receipt by said mobile station of said first signal, receiving said third signal and decoding said third signal with said second code to produce a demodulated signal.

19.   The method of claim 18, further comprising the step of subtracting the demodulated first signal from the composite signal.

20.   The method of claim 18, wherein the second base station gradually increases a power level of the third signal to a desired power level.

21.   The method of claim 18, further comprising the step of gradually decreasing a power level of the first signal after the mobile station receives the third signal.

22.   The method of claim 18, further comprising the step of simultaneously transmitting signals from the mobile station to the first and second base stations, wherein the mobile station gradually increases a power level of signals transmitted to the second base station and gradually decreases a power level of signals transmitted to the first base station.

49.   The method according to claim 4, wherein the error correcting step further comprises:

        post detection selection combining by selecting on a symbol-by-symbol basis from either the first demodulated signal or the second demodulated signal the symbols that are to be error corrected.

50.   The method of claim 4, wherein the error correcting step includes combination of said first and second demodulated signals within or subsequent to the determination by the error correction decoding process of the data most likely transmitted.

51.   The cellular mobile radio telephone of according to claim 14, further comprising CDMA post detection selection combining means for selecting on a symbol-by-symbol basis from either the first demodulated signal or the second demodulated signal the symbols that are to be error corrected.

52.   The cellular mobile radio telephone of according to claim 14, further comprising, error correcting means for combination of said first and second demodulated signals within or subsequent to the determination an error correction decoding process of the data most likely transmitted.